BioMax Environmental
Environmental Consulting and Industrial Hygiene Services

June 11th, 2009

Mr. Robert Courtnier
Chief Construction Services Division
707 Third Street - 8th Floor
West Sacramento, CA 95605

Microbial Assessment of 11th Floor
Department of General Services Board of Equalization Building
450 N. Street
Sacramento, California

Dear Mr. Courtnier,

BioMax Environmental, LLC (BioMax) is pleased to provide the Department of General Services (DGS) with this letter summary report detailing BioMax's findings and recommendations pertaining to our 11th Floor inspection and microbial assessment of currently identified representative "moisture stained" surfaces accessible within the ceiling plenum and related work space areas within your 450 N Street Building (subject building) located in Sacramento, California. BioMax understands that these microbial inspection and sampling assessment services were specifically requested by DGS in an effort to assess and evaluate a number of representative areas currently identified where moisture staining and potential resultant microbial (mold) damages have been indicated. Such areas of concern currently identified within the 11th Floor, have been primarily indicated on localized areas of visibly accessible surfaces located within the ceiling plenum acoustic barrier sheetrock and surrounding areas and materials.

Information provided to BioMax by BOE representatives has also indicated that historical water release events have been reported to have impacted the ceiling cavity and working space areas within the 11th floor throughout BOE's tenancy. Hence, these microbial inspection and sampling assessment services have been performed by BioMax in an effort to evaluate (through inspection and sampling) the current environmental conditions present within visibly identified and stained materials accessible at the time of this assessment.

ASSESSMENT PROCEDURES AND METHODS

All site inspection and assessment activities were performed during a period between May 11th and May 12th, 2009 by Mr. Michael A. Polkabla, CIH, REA of BioMax Environmental, LLC in

accordance with currently recognized microbial assessment and sampling guideline procedures. Mr. Polkabla has been certified in the Comprehensive Practice of Industrial Hygiene by the American Board of Industrial Hygiene and holds the right to the designation "Certified Industrial Hygienist" (CIH) under certification number CP 7104. Mr. Polkabla is also certified by the California Environmental Protection Agency (Cal/EPA) as a Class I Registered Environmental Assessor (REA) under Cal/EPA certification number 05011.

During the period noted, BioMax performed a systematic site inspection and assessment of accessible interior ceiling plenum and working space areas located within the 11th floor where representative visibly stained surfaces were identified. As part of this assessment BioMax reviewed applicable sections within the report summary prepared by LaCroix Davis, LLC entitled California State Board of Equalization Building Final Report, dated February 25, 2009. BioMax also requested and was provided with limited prior sampling data tables prepared by Hygiene Technologies International, Inc. (HTI) applicable to the 11th Floor assessment area.

Based on observations and area conditions noted at the time of this assessment, BioMax collected a series of surface and bulk material samples of representative stained surfaces and damaged materials as part of this assessment. Such samples were collected within locations and materials of concern wherein evidence of physically stained and/or mold-like contamination were identified within representative materials and surfaces. A series of airborne samples were also collected during our assessment activities in an effort to identify and evaluate the current airborne levels of microbial contaminants present within the 11th Floor working space areas before, during, and after the completion of these assessment activities. Third party analysis by an independent accredited microbial laboratory was performed utilizing appropriate microscopy analysis so as to identify and quantify the current environmental microbial conditions associated with each of the airborne work space areas sampled as well as the visibly impacted materials and surfaces identified.

SAMPLING PROCEDURES

On-site inspection and sampling assessment activities were conducted by Mr. Michael A. Polkabla, CIH, REA, of BioMax Environmental, LLC on the previously noted dates. All sampling equipment, supplies, and collection media were provided by BioMax as part of the performance of this scope of work. Sample collection procedures and methods were performed using aseptic sampling methods following techniques prescribed by the contracted analytical laboratory.

Spore Trap Airborne Microbial Sampling:

The collection of airborne Spore Trap microbial samples was achieved using Zefon Air-O-Cell sampling cassette collection devices placed in each of the areas identified in the attached analytical reports and summarized in the tables provided below. Airborne Spore Trap samples were collected within representative areas located throughout the 11th Floor working space areas during periods before, during and after the performance of required localized ceiling tile removal

and sampling activities. Sample collection was performed at a height of approximately four feet above ground level using a tripod mounted Quick Take 15 air sampling pump manufactured by SKC. Samples were collected at a calibrated flow rate of 15 liters per minute for a total of five minutes per sample. Resultant total sample volumes, therefore, corresponded to 75 liters collected for each collected sample. Field calibration of the SKC air sampling pump was verified prior to sampling using a field rotometer devise calibrated with a Bios Drycal primary standard flow meter. All spore trap air sampling and analytical procedures were performed in accordance with prescribed manufacturer guidelines as well as applicable professional certified industrial hygiene indoor air quality microbial investigation procedures and certified industrial hygiene practices.

Additional exterior ambient samples were also similarly collected and analyzed before and after the interior sample collection in an effort to identify and quantify representative background microbial taxa (types), rank order, and corresponding airborne spore levels present within the ambient environment at the time of this assessment for comparative purposes. Sampling collection activities performed during this study included the collection of identifiable airborne microbial contaminants within the representative area locations noted in Table 1:

Table 1. Airborne Spore Trap Sampling Locations:

Air Sample Number	Date - Spore Trap Air Sampling Location (Before, During, or After Inspection)
14645462	5/11/09 - Ambient Pre-interior Sample at Garage Rooftop
14525150	5/11/09 – 11th Floor West Side Area (Before Inspection)
14645473	5/11/09 – 11th Floor South Side (Before Inspection)
14645347	5/11/09 – 11th Floor East Side (Before Inspection)
14524682	5/11/09 – 11th Floor North Side Hallway (Before Inspection)
14524732	5/11/09 – 11th Floor North Side Hallway (After Inspection)
14645334	5/11/09 – 11th Floor North Side Area (After Inspection)
14645498	5/11/09 – 11th Floor West Side Area (After Inspection)
14645317	5/11/09 - Ambient Post Sample at Garage Rooftop
14645428	5/12/09 – Ambient at Garage Rooftop
14652592	5/12/09 – 11th Floor North Side Area (During Inspection)
14525129	5/12/09 – 11th Floor East Side Area (During Inspection)

Air Sample Number	Date - Spore Trap Air Sampling Location (Before, During, or After Inspection)
14525205	5/12/09 – 11th Floor South Side Area (During Inspection)
14524745	5/12/09 – 11th Floor West Side Area (During Inspection)
14525191	5/12/09 - Ambient at Main Entry

Bulk and/or Surface Sampling:

During our site inspection and sampling assessment activities, representative bulk material and surface material samples were collected from representative areas of visibly impacted surfaces/materials of concern noted within the summary table below. A sample location sketch is also provided as an attachment to this report for further visual identification of sample locations. All surface samples were collected using BioTape collection media prepared and supplied by SKC International in accordance with manufacturers sampling guidelines as well as applicable professional certified industrial hygiene microbial sampling practices. Bulk material samples were similarly collected utilizing aseptic sample collection technique in accordance with standard microbial sampling practices. Bulk material sampling tools (as necessary) were wet wiped with a solution of isopropyl alcohol prior to each use. Disposable gloves were also utilized during sample collection and changed between each unique surface and/or bulk material sample.

Table 2. BioTape Surface and Bulk Material Sample Locations on 11th Floor:

Sample Number	Date - Material Sampling Location
B01	5/11/09 - Stained sheetrock material at Fireproofing interface in N. Hallway
B02	5/11/09 – Stained Sheetrock paper within N. Hallway area
B03	5/11/09 – Stained wall surface within N. working area above prev. shelving
B04	5/11/09 – Stained sheetrock paper near column N20 within prev. LCD 8 cont.
B05	5/11/09 – Stained sheetrock paper near column N21
B06	5/11/09 – Stained sheetrock tape material in SW corner of 1104 area
C1	5/11/09 – Staining on rear side of west perimeter column M in working space
C2	5/11/09 – Staining at 6" afl on 21 grid column in working space
E1	5/12/09 – Stained sheetrock paper near L grid East

Sample Number	Date - Material Sampling Location
E2	5/12/09 - Stained sheetrock tape joint near L grid E. area
E3	5/12/09 - Stained sheetrock tape joint near L grid E. within prev. LCD 5 cont.
E4	5/12/09 – Stained sheetrock tape joint near M grid NE side area
E5	5/12/09 – Stained sheetrock paper near M grid NE side area
E6	5/12/09 – Stained sheetrock paper near K19
E7	5/12/09 – Stained sheetrock paper near K19 at wire penetration
E8	5/12/09 – Stained sheetrock paper on S. side 1104 area
G1	5/12/09 – Staining on rear side of east perimeter column L in working space

At the conclusion of sampling activities, preparation and shipping of the collected samples were accomplished in accordance with standard industrial hygiene chain of custody (COC) documentation procedures and quality assurance/quality control practices. Once collected, labeled, and recorded, all samples were double sealed within airtight plastic Ziploc shipping containers and transported via Federal Express Priority Mail to Environmental Microbial Laboratories (EMLabs) in San Bruno, California. EMLabs is an independent third-party laboratory which holds current applicable analytical accreditation specializing in microbial analytical procedures. Sampling and chain of custody records are provided as an attachment to this letter report for further reference.

Written sampling procedural guidance material prepared by the analytical laboratory and/or sample media manufacturer may also be provided upon request. A summary of bulk and/or surface material sampling locations are provided in the attached Chain of Custody records and original sample results. Specific sample locations may also be referenced within the attached field sampling records, as necessary.

SITE OBSERVATIONS

On-site inspection and sampling assessment activities were performed by Mr. Michael A. Polkabla, CIH, REA, of BioMax. In general, accessible ceiling plenum and working space surfaces were inspected so as to visually identify material surfaces which exhibited evidence of moisture staining and/or microbial (mold) related damages at the time of our assessment. The majority of the noted stained surface/materials identified within the 11th Floor ceiling plenum spaces were observed following the physical removal of ceiling tile materials previously noted (with color dot indicators) during the floor-wide ceiling tile removal and replacement activities

performed by JLS in early 2008. A summary of significant observations and findings gathered during BioMax's site inspection and assessment of the subject areas has been compiled within the attached Bulk/Surface Sampling Records.

ANALYTICAL FINDINGS AND CONCLUSIONS

Airborne Spore Trap Sample Findings:

Laboratory analytical methods for the identification and enumeration of microbial (mold) taxa and particulate contaminants were conducted in accordance with prescribed analytical procedures and quality control/assurance measures. Original laboratory results including the enumeration of recognizable microbial spore and particulate types are also attached to this letter report for further reference and detail. A summary of airborne Spore Trap microbial (mold) and particulate findings pertaining to each of the subject areas are presented in Table 3 below:

Table 3. Airborne Microbial and Particulate Findings:

Location Desc.	Total Mold Spores (Cts/m3)	Background Debris (scale of 1-4)	Skin Cell Fragments (scale of 1-4)	Hyphal Fragments (units/m3)
5/11/09 - Ambient Pre-interior Sample at Garage Rooftop	22,000	4+	<1+	30
5/11/09 – 11th Floor West Side Area (Before Inspection)	160	3+	1+	<13
5/11/09 – 11th Floor South Side (Before Inspection)	13	3+	1+	<13
5/11/09 – 11th Floor East Side (Before Inspection)	53	2+	1+	<13
5/11/09 – 11th Floor North Side Hallway (Before Insp.)	170	3+	2+	<13
5/11/09 – 11th Floor North Side Hallway (After Insp.)	130	2+	1+	<13
5/11/09 – 11th Floor North Side Area (After Inspection)	120	3+	2+	<13
5/11/09 – 11th Floor West Side Area (After Inspection)	67	3+	2+	<13

Location Desc.	Total Mold Spores (Cts/m3)	Background Debris (scale of 1-4)	Skin Cell Fragments (scale of 1-4)	Hyphal Fragments (units/m3)
5/11/09 - Ambient Post Sample at Garage Rooftop	13,000	4+	<1+	250
5/12/09 – Ambient at Garage Rooftop	11,000	3+	<1+	430
5/12/09 – 11th Floor North Side Area (During Inspection)	110	2+	1+	<13
5/12/09 – 11th Floor East Side Area (During Inspection)	53	2+	1+	<13
5/12/09 – 11th Floor South Side Area (During Inspection)	110	2+	1+	<13
5/12/09 – 11th Floor West Side Area (During Inspection)	110	2+	1+	<13
5/12/09 - Ambient at Main Entry	590	2+	<1+	<13

The analytical findings presented in Table 3 above, clearly indicate the presence of significantly lower concentrations of total microbial (mold) spores measured within the interior samples collected before, during and after BioMax's ceiling area inspection activities when compared to the levels currently measured within the samples collected from the corresponding ambient outside environment. Analytical findings also indicate similar fungal taxa distribution (mold types) and rank order (predominant taxa) of molds identified within the 11th Floor locations when compared to the ambient outside mold taxa. Analysis of fungal hyphal fragments (vegetative fungal growth structures) also indicated the absence of elevated residual fungal growth structures within the interior 11th floor area air samples. Particularly worthy of note, was the verified absence of elevated levels of residual airborne hydrophilic (moisture loving) mold spore taxa (such as Chaetomium, Pen/Asp, and/or Stachybotrys, etc.) following the performance ceiling tile removal and sampling activities within the noted areas.

Although there are currently no regulatory standards or limits pertaining to allowable airborne fungal concentrations (for any mold taxa) present in indoor environments, there is a general consensus among indoor air quality experts that airborne microbial contamination found within "typical healthy" living and working spaces are generally similar in kind and present at levels

which are below those found in the corresponding native outside environment. BioMax believes that the absence of elevated airborne mold spores and/or hyphal (mold growth) structures, and relatively fewer total interior airborne mold levels with unremarkable ("typical") taxa and rank order distribution both during and after BioMax's sampling assessment activities are consistent with these generally acceptable interior space conditions. BioMax, therefore, believes that these findings provide reasonable evidence indicating that the performance of ceiling tile removal and sampling activities performed by BioMax within the noted 11th Floor areas have not indicated a measurable impact or alteration to the interior air quality resultant from these performed activities under the sampling methods and controls noted.

Bulk Material and/or Surface Sample Findings:

Laboratory analytical methods for the identification and enumeration of microbial taxa were conducted in accordance with prescribed analytical procedures and quality control/assurance measures. Laboratory analytical methods for the identification and enumeration of microbial fungal contaminants within the collected surface and/or bulk material samples were achieved through direct microscopic analysis using bright field microscopy. A summary of significant observations and findings gathered during BioMax's site inspection and assessment of the representative ceiling plenum and work space areas identified within the 11th Floor has been compiled within Table 4. Mold types (genera) are listed in rank order from greatest to least for comparative purposes. Original laboratory results including the identification of recognizable microbial taxa are provided as an attachment to this letter report for further reference. Sampling and chain of custody records are also provided as an attachment to this report for further reference.

Table 4. Summary of Bulk Material and Surface Findings:

Sample Number	Sample Material and Location	Mold Genera Identified Present (rank order)
B01	5/11/09 - Stained sheetrock material at Fireproofing interface in N. Hallway	No mold identified
B02	5/11/09 – Stained Sheetrock paper within N. Hallway area	No mold identified
B03	5/11/09 – Stained wall surface within N. working area above prev. shelving	Brown mold spores detected
B04	5/11/09 – Stained sheetrock paper near column N20 within prev. LCD 8 cont.	No mold spores identified
B05	5/11/09 – Stained sheetrock paper near column N21	Brown mold spores detected

Sample Number	Sample Material and Location	Mold Genera Identified Present (rank order)
B06	5/11/09 – Stained sheetrock tape material in SW corner of 1104 area	Cladosporium spores detected
C1	5/11/09 – Staining on rear side of west perimeter column M in working space	Cladosporium spores detected
C2	5/11/09 – Staining at 6" afl on 21 grid column in working space	Cladosporium, Pen/Asp, other brown, Alternaria, Rusts, Smuts, Periconia, Myxomycetes spores identified
E1	5/12/09 – Stained sheetrock paper near L grid East	Penicillium/Aspergillus types, other brown spores identified
E2	5/12/09 - Stained sheetrock tape joint near L grid E. area	Other brown spores identified
E3	5/12/09 - Stained sheetrock tape joint near L grid E. within prev. LCD 5 cont.	No mold identified
E4	5/12/09 – Stained sheetrock tape joint near M grid NE side area	No mold identified
E5	5/12/09 – Stained sheetrock paper near M grid NE side area	Penicillium/Aspergillus type spores identified
E6	5/12/09 – Stained sheetrock paper near K19	Penicillium/Aspergillus type spores identified
E7	5/12/09 – Stained sheetrock paper near K19 at wire penetration	No mold identified
E8	5/12/09 – Stained sheetrock paper on S. side 1104 area	No mold identified
G1	5/12/09 – Staining on rear side of east perimeter column L in working space	Cladosporium, Chaetomium, Alternaria, other brown mold spores identified

Noted relative levels should be used for comparative purposes only and are not intended to establish "safe" or "acceptable" indoor levels/conditions.

As indicated in the table summary above, analytical findings ranged from no microbial spores detected within staining to materials which clearly indicated the presence of unique microbial fragments (spores) present. Such findings of microbial contaminants identified present within sampled materials where visible staining and/or suspect damages were noted, indicated the presence of mold within ten out of 17 total collected surface/bulk material samples. Such findings indicate that the identified presence of visible staining within the building materials as sampled resulted in the presence of identified mold spores in 59 % of the total number of samples. Such identified mold within the visibly "stained" bulk and surface materials sampled, represent what BioMax believes to be evidence indicative of chronic historical moisture impacts within the substrate materials.

Although there are currently no regulatory standards or limits pertaining to allowable surface and/or bulk fungal concentrations (for any mold taxa) present on interior surfaces or materials, there is a general consensus among indoor environmental quality and microbial experts that significant microbial contamination found within occupied space building materials should be treated, removed, and/or otherwise minimized wherever practicable. Hence, BioMax believes that the findings detailed in this report warrant DGS to consider the implementation of the recommended precautions, continued area controls, and the performance of mitigative measures pertaining to the areas identified. A summary of mitigative recommendations has been provided at the conclusion of this report for consideration purposes as necessary.

RECOMMENDATIONS

Based on BioMax's review of the analytical data evaluated as part of this assessment and review of current observations and findings available at this time, BioMax recommends that appropriate corrective measures and mitigative actions be performed in accordance with the procedures and methods noted below. Hence, based on the findings presented in this report, BioMax had previously proposed the following ceiling tile removal procedural recommendations for appropriate consideration and implementation as applicable. As of the time of this report, such activities have been performed under DGS's approval and have been incorporated into this report for historical procedural accounting purposes.

Method A) Ceiling Tile Removal and Inspection: Due to the limitations of BioMax's visual preliminary observations (limited to selected locations for the purposes of this assessment) and historical reports of periodic water release events which had been reported within ceiling and work space areas located on the 11th floor BioMax recommends the following:

- An appropriate number of ceiling tiles shall be removed throughout the 11th floor working and maintenance areas to allow for an appropriate visual inspection and identification of ALL surfaces where moisture staining has occurred within the ceiling plenum spaces.
- It is recommended that ceiling tile removal shall be performed by the selected site mitigation contractor as described below.

- Removal methods shall include the localized use HEPA filtered air scrubbing machines operated within the areas of ceiling tile removal. Portable HEPA vacuum equipment shall be utilized to collect and remove any resultant debris generated by the physical removal activity noted.
- 11th Floor Heating Ventilation and Air Conditioning (HVAC) systems shall remain operational during this phase of activity.
- BioMax anticipates that this ceiling tile removal activity shall be performed within all accessible working spaces, hallways, and maintenance areas by the selected mitigation contractor.
- As a precautionary measure, Personal Protective Equipment (PPE) regimen utilized by contracted personnel during the performance of ceiling tile removal shall include the appropriate use of Tyvek suit, dust mask (minimum N95), ANSI approved eye protection, and nitrile(or latex) gloves.
- DGS may wish to consider the supplemental removal of some or all of the ceiling tile grid support system during the performance of this activity as a means to minimize costs associated with subsequent sheetrock removal activities recommended below.
- Following the completion of ceiling tile and debris removal, BioMax shall perform a comprehensive inspection/survey to identify and record the locations of all visible areas and materials which exhibit evidence of historical moisture contact and/or staining.
- Based on this survey (which has been now completed at the time of this report), a floor wide site map has been generated which delineates the areas/locations of such visible staining at this time. This detailed map is available for review within JLS's construction offices located on the 11th floor conference room.

Mitigative Summary:

Based on BioMax's review of the 11th Floor site map details generated following the removal of ceiling tile materials referenced above (Method A), BioMax recommends that forthcoming mitigative activities involve a combination of localized mitigative removal methods (Method B) and/or the application of a sealant / encapsulant (Method C) treatment as indicated in the sections noted below. BioMax's recommendation pertaining to specific method of choice (B or C) for consideration has been determined through a relative comparative review of available data and visible area of staining currently identified within the 11th floor ceiling systems following the removal of localized ceiling tile materials as performed. A relative prioritization was also performed by BioMax with the intended goal to segregate the areas of most moisture and mold damage into areas for forthcoming containment removal and least damage areas for surface preparation and encapsulation. A summary floor plan map has been prepared and attached to this report as a current reference of areas which BioMax recommends the higher level of mitigative removal for consideration (Method B), versus encapsulation, based on current findings and available information. The remaining visibly identified moisture stained surfaces (not designated for mitigative removal herein) are recommended by BioMax to receive the application of a sealant / encapsulant treatment as noted below.

Please note – BioMax recommends that All visibly accessible ceiling acoustic wallboard materials be appropriately inspected by DGS building inspection personnel so as to assure

compliance with applicable building code requirements relative to any identified structural and/or physically damaged areas and surfaces.

Method B) Mitigative Removal of Stained Material Areas: All areas identified where significant physical moisture staining is evident (as delineated in the site map provided) shall be removed and mitigated under containment controls and the procedures noted below. Such area specific activities shall be performed under negative pressure containment structure barriers noted in the following recommendations. In general, all accessible stained ceiling wallboard and selected work space sheetrock surfaces shall be removed under negative pressure containment controls so as to visually inspect underlayment materials for appropriate removal and/or treatment as necessary. Any underlayment fiberglass insulation materials present within the visibly impacted areas shall also be removed and disposed as a precautionary measure. Spray on fire proofing materials uncovered and identified within the ceiling cavity as part of this activity which exhibit evidence of significant historical moisture staining within the impacted areas shall also be removed and replaced as part of this mitigative effort.

The implementation of localized mitigative removal measures specified in **Method B** shall be performed in accordance with the following:

1. **Mitigation Contractor**: A mitigation contractor shall be selected and contracted to perform the activities specified in these procedures. Such activities shall include all containment system set up, mitigative removal/treatment, and clean-up during the performance of this designated scope of work as described below. The selected mitigation contractor must be specifically trained in the field of current practices associated with microbial abatement techniques and containment methods as well as maintain demonstrated proficiency in the establishment and use of appropriate barriers, personal protective equipment, abatement techniques and methods as necessary in the performance of their designated scope of work.

2. **Isolation of the 11th Floor:** The activities associated with this mitigative work plan shall require the continued isolation of tenant personnel from access to the 11th floor during the performance of this work. Only personnel specifically supervised and authorized by the site mitigation contractor shall be allowed access into 11th Floor through the performance of these activities. Hence, appropriate notification, coordination, and scheduling shall be required and maintained throughout this mitigative activity.

3. **HVAC Operation:** All 11th Floor Heating Ventilation and Air Conditioning (HVAC) systems shall remain functional and operational during this phase of activity unless otherwise directed by the Project CIH. Any such modifications to this operation shall be performed in response to BioMax's review of any collected air sampling data, site findings, and work activities, as necessary.

4. **Scheduling of Work:** Due to the required absence of access to the 11th Floor by BOE personnel, it is currently anticipated that all forthcoming mitigative activity will be performed by DGS's selected mitigation contractor during normal and extended business hours as necessary in accordance with the recommended protocols established herein.

5. **Establishment of Localized Containment Barriers:** It is anticipated that the phased isolation of the selected work areas (including work space and impacted above ceiling areas) shall be established and maintained through the use of protective containment barrier systems. Such systems shall be established in a general floor-wide quadrant based approach during physical removal of sheetrock and forthcoming mitigative efforts performed under this scope of work. To this end, localized critical barrier and negative pressure area containment barrier systems shall be scheduled and established and maintained within each quadrant of the 11th Floor as designed under the supervision and direction of the Project CIH. Such systems shall be maintained for the duration of mitigative sheetrock and material removal activities. Negative air pressure shall be maintained and documented within all critical areas (for the duration of this scope of work) utilizing High Efficiency Particulate Aerosol (HEPA) filtered "negative air machine" equipment vented to the outside adjacent interior areas. An adequate supply of filtered intake air shall also be established to allow an adequate supply of "clean" HEPA filtered make-up air into the critical containment wherever practicable. As a performance criteria goal, negative air pressure will be established and maintained within the established containment system areas at a performance goal level of -0.020 inches of water pressure on a 24 hour basis for the duration of mitigative activities, whenever possible and feasible. Also, wherever possible, clear translucent plastic observation windows shall also be placed on the critical containment barrier system within direct sight of the affected work areas for the purposes of facilitating non-entry inspection during the performance of prescribed destructive inspection and repair activities. Containment systems shall consist of plastic or otherwise impermeable materials with zippered entry chambers erected to allow controlled access and egress from such contained areas. HEPA filtered vacuum equipment capable of the effective removal of particulate contaminants from tools and personal protective equipment shall be placed within the zippered entry/egress chamber attached to each designated working and inspection area.

6. **Posting and Containment Pressure Monitoring -** During the performance the forthcoming destructive inspection and mitigative activities, appropriate signage and warnings must be posted within the areas leading to all controlled areas and particularly on the exterior of containment entrances to record entry access and to preclude uninformed access from unauthorized personnel. For these purposes, a sign-in log shall also be maintained at the designated entrances of each containment area as well as immediately outside any primary floor access elevators utilized by all inspection and repair personnel who enter the controlled areas. Data logging monitoring equipment employed to record pressure differentials on a 24-hour basis shall be used for the duration of this project where functional critical barriers are established and in use. Such pressure monitoring devices shall utilize paper strip chart records so as to allow routine and regular inspection of pressure readings by the Project CIH and DGS project management personnel as necessary. The mitigation contractor shall maintain these chart records and will provide a weekly written summary of continuous monitoring levels for the duration of the project and upon request.

7. **Modifications to Barrier Systems:** Any smoke detectors and/or fire suppression systems present within containment systems shall NOT be covered nor rendered inoperable unless

specifically authorized under the direction and supervision of DGS building maintenance personnel. BioMax is prepared to provide the selected mitigation contractor with additional and ongoing detail pertaining to the establishment maintenance, and specific locations of critical containments and barrier systems upon request, as necessary. Once final containment parameters have been scheduled and delineated, the mitigation contractor shall maintain an "as built" record (both digitally and on site map records) of specific containment locations and materials for further review and reference.

8. **Establishment of Air Scrubbing and Negative Air Machines -** Supplementing the existing negative air machines (designed to establish and maintain negative air pressure within each of the containment barrier systems) the additional use of HEPA filtered air scrubbing machines may also be utilized within critical areas of adjacent spaces, as directed by the Project CIH during forthcoming destructive inspection, mitigation, clean-up, and repair activities, as deemed necessary. At the direction of the Project CIH, such air scrubbing machines may be established and oriented within active working spaces and relocated to additional active work areas as deemed necessary. Supplemental air scrubbing machines may also be placed within areas outside of the working and/or containment areas as an additional precautionary measure as necessary at the direction of the Project CIH.

9. **Personal Protective Equipment (PPE):** Personal protective equipment utilized by containment entrants during the performance of interior material removal, mitigation, cleaning, and activities repair, shall include the use of hooded Tyvek coveralls, nitrile (or latex) gloves (1-3 mil.), ANSI approved eye protection, and NIOSH approved HEPA filtered (P100) half face air purifying respiratory protection devices at a minimum. PPE requirements associated with area containment set up and equipment handling (prior to material removal activities within containment systems) may utilize standard construction regimen including standard material coveralls and ANSI approved eye protection at minimum. Voluntary use of dust mask-type respiratory protection may also be utilized during these set-up activities by workers, inspectors and/or subcontractors only during non critical material set-up activities (including inspection and site walks) but is not applicable during the ceiling tile removal, destructive inspection, sampling, and repair procedures noted above.

10. **Scaffolding and Fall Protective Devices:** Worker activities utilizing elevated platforms, ladders and/or elevated scaffold equipment necessary in the physical removal of sheetrock and underlayment materials (including insulation and moisture impacted fire proofing) shall be accomplished in accordance with all applicable worker protection regulations and federal, state and local requirements. Such worker protection requirements include (but are not limited to) those requirements provided by the California Department of Occupational Safety and Health (otherwise known as Cal/OSHA) and the mitigation contractor's Health and Safety Program.

11. **Sheetrock Removal and Underlayment Inspection:** The mitigation contractor shall perform localized material removal and disposal of sheetrock materials identified in the attached site map to contain historical moisture staining as identified through the performance of ceiling plenum inspection (Section A). It is currently anticipated that the

physical removal of moisture damaged ceiling sheetrock (and insulation materials) so designated, shall be performed to allow the visual access of the interstitial ceiling cavity to identify any further areas of moisture staining/damage. Removal of building material segments shall employ the use of hand removal and equipment methods based on the material requirements encountered. At the mitigation contractor's option, such removal activities may include the application of local exhaust particulate extraction equipment during removal of wall material structures in an effort to minimize the generation and release of dust and friable particulate debris. All physical removal activities and procedural methods shall be performed by the mitigation contractor under the review and supervision of the Project CIH through on and off-site contact via appropriate communication media. Physical sampling of removed materials may also be performed at this time of material removal at the option and direction of the Project CIH.

12. **Work Space Mitigative Activity:** BioMax recommends that any work area furnishings (including shelving and carpeting) located within the noted maintenance areas (excluding visibly impacted materials) shall be cleaned and isolated from the active working area prior to the initiation of destructive removal and mitigative activities. As a precautionary measure following mitigative activity, all hard mounted and/or otherwise remaining hard surface furnishings (shelving, cabinets, etc.) shall receive a thorough detail cleaning utilizing mildicide wet-wiping, and HEPA vacuuming as part of these recommended procedures prior to subsequent clearance testing and reuse.

13. **Selected Column Material Removal:** Where specified during the performance of the visual inspection identified, BioMax specifically recommends that all visually stained and/or moisture damaged column materials identified shall be removed in accordance with these mitigative procedures in accordance with the attached site floor map. As verified through inspection, any affected sheetrock, flooring, and building materials shall be digitally documented by the mitigation contractor and removed, wherever feasible, to the extent of visible staining, at a minimum. Adjacent materials exhibiting signs of staining present within the impacted areas may also be removed under containment controls (at the direction of the Project CIH) for appropriate inspection of underlayment surfaces as deemed necessary. Removal of moisture impacted and damaged materials may also employ the use of appropriate item-specific containment methods and systems (such as sealed plastic glove-bag containment systems, or equivalent) applicable to the materials being removed at the discretion of the mitigation contractor. BioMax currently anticipates that all visually affected materials within the identified areas shall be removed for disposal, and physical inspection of wall cavities and underlayment surfaces, as necessary. Any underlayment materials exhibiting visible evidence of moisture staining shall also be removed or decontaminated through similar treatment as necessary.

14. **Other Material Removal:** Based on BioMax's best professional judgment, evidence indicating the reasonable presence of other potentially affected areas and building materials encountered during these deconstructive and investigative stages, (such as adjacent wall studs, floor underlayment, etc.) shall be thoroughly inspected to identify potential evidence of additional historical moisture impacted and/or damaged materials. In general, as a

precautionary measure, all moisture impacted materials shall be removed to the extent of visible staining and at least 2 feet beyond such identified perimeters, wherever feasible and practicable. The Project CIH shall review each area containing significant moisture impacted materials so as to render a professional opinion regarding the necessary extent of physical removal on a locational case-by-case basis.

15. **Treatment of Remaining Surfaces:** All remaining moisture/mold affected porous and non-porous building materials deemed infeasible for removal and/or disposal (due to structural integrity concerns) shall be inspected and receive a series of decontamination treatment measures designed to minimize and control the presence of microbial related residues and substances. Decontamination methods employed shall, at a minimum, include treatment of all identified surfaces with a series of thorough detergent (Simple Green) and/or chlorine based mildicide (minimum 10 parts water to 1 part chlorine soln.) applications as deemed necessary by the Project CIH followed by a series of thorough HEPA filtered vacuuming procedures using power sanding and/or brush agitation. The duration and frequency of mildicide and HEPA sanding/brushing applications employed may vary depending on local material contamination but shall be sufficient in removing and decontaminating visible surface staining to levels deemed by BioMax to be consistent with representative background levels. Reasonable additional mitigative measures and controls may be required, as necessary, upon discovery of additional contaminated materials as well as BioMax's site inspection findings and observations performed during this scope of work. BioMax would be happy to provide ongoing consultation with the contractor pertaining to these measures and site/material specific decontamination measures upon request.

16. **Encapsulation of Selected Surfaces Within Containment Areas:** As an additional precautionary measure, stained materials which have been deemed inappropriate for physical removal and/or surfaces which otherwise present a physical restriction to treatment may be considered for sealant/encapsulation treatment under the direction of the Project CIH. Where deemed appropriate, such are surfaces shall be encapsulated with an orange pigmented opaque (colored) sealant / encapsulant product in accordance with manufacturer's specifications and application guidelines. Note - Stained surface areas located outside of the designated containment barriers shall receive the application of similar sealant / encapsulant treatment in accordance with Method C noted later in this report.

17. **Removal of Moisture Stained Fire Proofing Materials within Currently Accessible Ceiling Areas:** Significant moisture stained and suspect mold stained fire proofing materials (identified as such by the Project CIH) identified within currently accessible plenum areas shall be removed under mitigative containment barriers utilizing a combination of scraping and stripping techniques applicable to the surface parameters encountered. Such removal activities may or may not include the application of a low volume misting agent prior to physical removal in an effort to minimize the generation and release of friable particulates. All physical removal activities and procedural methods shall be performed by the mitigation contractor under the review and authorization of the DGS project management team and the Project CIH. It has been indicated by DGS that material removal is required to the extent and level as where bare metal has been visibly exposed and/or otherwise rendered accessible

to subsequent re-application of replacement material. Wherever possible, an appropriate margin shall also be removed surrounding each area where significant staining of fire proofing materials had been identified. Such activity has been recommended as an additional precautionary measure so as to achieve prudent affective removal of visibly impacted fire proofing material as well as potential impacted materials located adjacent to the known and/or suspected moisture source, if identified. All plenum areas where physical access to impacted fire proofing materials has been hindered due to the proximity of existing plenum HVAC equipment shall be addressed through additional area-specific review and consideration. Within such areas, it is currently anticipated that physical access shall be facilitated though the reorientation and/or removal of the plenum equipment in question (where practicable) and may be achieved through consultation with appropriate building engineering personnel and/or representatives.

Method C) Surface Preparation Cleaning and Encapsulation of localized stained surfaces/materials pursuant to **Method C** shall include the following:

1. **Surface Cleaning and Preparation:** Following the establishment of appropriate quadrant-type critical containment barriers and demonstrated negative pressure differential as specified in these procedures, the mitigation contractor shall perform a detailed cleaning and surface preparation of all exposed and accessible wallboard surfaces within the designated ceiling areas noted. Surface cleaning shall employ the use of a series of HEPA filtered treatment and wipe methods specific and appropriate to the surface condition encountered. In general, surface cleaning shall be performed with the intent to remove and/or minimization the presence of visible moisture and/or mold-like staining on exposed wallboard material surfaces as well as to prepare the wallboard surfaces for appropriate adhesion by the selected sealant / encapsulant product. Utilization of sponge wipe methods, hand-held abrasive tools, and HEPA vacuum equipment with soft bristle brush attachments may be utilized by the mitigation contractor under review by the Project CIH. Application of a commercially available detergent (such as Simple Green) and/or mildicide cleaning solution (such as Foster's product) to aid in the cleaning procedure may also be utilized on surfaces requiring such additional treatment and methods, as deemed necessary.

2. **Adjacent Area Surfaces Clean-Up:** During the performance of designated surface cleaning, adjacent surfaces accessible within the impacted ceiling areas shall also receive the performance of a general surface cleaning to reduce the presence of accumulated dust and debris within the plenum structures utilizing appropriate surface treatment procedures. Such methods shall be performed in an effort to minimize the presence of accumulated accessible debris and particle deposition as practicable. Following all physical surface preparation and cleaning noted above, a detailed gross material clean up activity shall be performed by the mitigation contractor to remove any dislodged particulate debris utilizing applicable methods, procedures, and equipment. Such procedures and methods are currently anticipated to include HEPA vacuuming and/or wet-wiping methods as applicable in the removal of gross visible debris and materials associated with the wall/surface preparation activities noted.

3. **Exposed Fire Proofing Overspray on Wallboard Surfaces:** It is understood through consultation with DGS that surfaces adjacent to those where fire proofing (FP) material had been previously applied, may contain "overspray" deposits of varying degrees. It has been indicated by DGS to BioMax that these "oversprayed" wallboard surfaces were not originally designed or intended to receive the application of a fire proofing coating and typically exist as a two to five inch border adjacent to iron beam materials which were originally intended for direct FP spraying during the construction of the BOE building. Therefore, BioMax currently anticipates that FP overspray may be removed, cleaned, and/or receive sealant / encapsulated treatment (see below) as part of the overall surface treatment activities noted within this Method. It is anticipated that such "overspray" preparation of non essential surfaces may be achieved utilizing HEPA vacuuming with soft (non damaging) bristle brush attachments and/or physical removal with scraping tools and local HEPA filtered exhaust equipment as necessary.

4. **Sealant / Encapsulant Treatment Activity:** The application of a sealant/encapsulate coating material shall be performed by the mitigation contractor in accordance with the product manufacturer's use guidelines. It is currently anticipated that the use of Fosters 40-50 Mold resistant coating material (a "colored" non-translucent sealant product) will be utilized for these purposes. Use of a pigmented "orange" colored product has been specified so as to visually verify the locational extent and degree of material application as necessary. Any substitution of these selected products shall be made based on product performance criteria as well as a demonstrated low odor and emission formula. Any product selection revision decision shall also be reviewed by the Project CIH, as applicable. It is currently anticipated that all identified stained wallboard surfaces shall receive a surface cleaning/preparation treatment prior to the application of a sealant / encapsulant coating as per this scope of work utilizing hand rolling application techniques. The sealant / encapsulant product is only intended to be applied to intact wallboard surfaces within the ceiling plenum area during the performance of these procedures. Any similar application of sealant / encapsulant product onto existing intact fire proofing material shall only be performed in accordance with manufacturer's application guidelines and State Fire Marshall review and approval. Other surfaces and mechanical surfaces present within the impacted ceiling areas and working spaces shall not receive the application of a sealant / encapsulant coating unless otherwise specified by direction of the Project CIH. As previously noted - BioMax recommends that All visibly accessible ceiling acoustic wallboard materials be appropriately inspected by DGS building inspection personnel so as to assure compliance with applicable building code requirements relative to any identified physically damaged areas and surfaces.

5. **Final Clean-Up:** Following the performance of gross material clean up resultant from surface preparation and sealant / encapsulant application methods, all floor materials and furnishings shall be detail cleaned utilizing a combination of HEPA vacuuming and wet-wiping methods as applicable to the surface and materials in question. Local HEPA filtered air scrubbing machines shall also be utilize during these area clean-up treatments as necessary. Detailed material clean up activities shall be performed within the quadrant containment barriers by the mitigation contractor utilizing methods, procedures, and equipment applicable to the material surface and debris in question. Such procedures and

methods may include material specific HEPA vacuuming and wet-wiping methods as applicable in the removal of all gross visible debris and materials associated with the wall and ceiling material removal and inspection activities. HEPA filtered air scrubbing shall be maintained operational for a minimum of 24 continuous hours prior to any further containment entry access, inspection, and/or clearance assessment activities.

6. **Flooring:** It is specifically recommended that existing carpeting and floor coverings will remain during the performance of the mitigative activity to provide an appropriate cover to the concrete subfloor underlayment. Such recommendation is advisable due to the known difficulty in actively working on an exposed concrete subflooring surface where residue carpet glues have been shown to present a significant physical hindrance to worker activities based on our experience. However, following all mitigative and clean-up activities, the carpet surfaces shall be HEPA vacuumed and then removed (with debris removal) by the mitigation contractor under containment barrier controls.

7. **Post Mitigation "Clearance" Assessment:** Upon verified inspection of completion, BioMax's Project CIH shall perform a visual inspection to verify the continued integrity and maintenance of the containment systems and to verify that that all prescribed removal and clean-up efforts have been appropriately achieved. Once physically verified, the Project CIH shall collect a series of microbial "clearance" air samples to verify that all localized and quadrant-based containment areas have been appropriately decontaminated to acceptable background airborne levels and that the affected areas within and surrounding each of the containment areas are verified as "cleared" for forthcoming reconstruction activities (including reapplication of fire proofing materials). Specific clearance criteria parameters utilized during this phase of assessment have been previously developed by the Project CIH and approved by DGS and BOE as referenced in BioMax's procedures entitled Post Mitigation Clearance Assessment Protocols, dated February 15th, 2008. As part of this post mitigation "clearance" verification process, the provision of appropriate access for parallel inspection and review of sampling data and current site conditions shall be offered to BOE and their consultants. It is currently anticipated that a reasonable time period shall be afforded to BOE and their industrial hygiene consultants for their appropriate inspection, review of analytical findings, and performance of any supplemental sampling activities (at BOE's option) prior to initiation of reconstruction activities. Additional "punch-list" action items may be provided to the contractor following the performance of this site clearance inspection prior to receipt of analytical results, as deemed necessary.

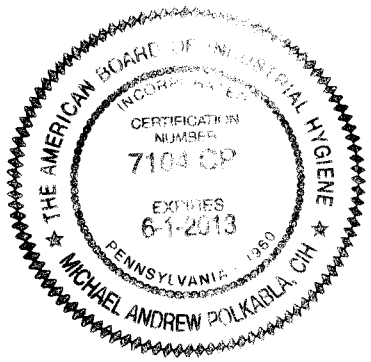
8. **Phased Post Clearance Access for Reconstruction:** It is critical that all BOE staff, DGS personnel, inspectors, and contractors shall only be provided further access into containment areas following the receipt of analytical findings wherein acceptable conditions have been reviewed and verified by the Project CIH. Emergency access into any containment area prior to such verification shall only be permitted under the direct supervision and attendance of JLS and/or BioMax representatives. It is currently anticipated that individual quadrant areas shall be inspected and "cleared" individually so as to allow the phased reconstruction and application of any replacement fire proofing materials during the continued mitigative activity within adjacent quadrant zones. Following successful achievement of acceptable

post mitigation criteria, BioMax recommends that the selected fire proofing contractor perform reapplication activities in accordance with applicable standards, building codes, and ordinances, as necessary. All activity scheduling shall be scheduled/coordinated by DGS under the review and supervision of the Project CIH during these forthcoming activities.

9. **Additional Assessment and Mitigative Activities:** Reasonable additional assessment and mitigative measures may also be required upon the identification of new or previously undiscovered materials and/or information related to moisture/microbial impacts, as necessary. Any reoccurrence of moisture intrusion indicators and/or microbial contamination following final reconstruction should certainly be reviewed and addressed through further professional consultation, as necessary. BioMax would be happy to provide additional microbial consultative services pertaining to the further assessment and mitigation of such structures upon request.

Once again, it has been a pleasure working with DGS on these important matters. If you have any additional questions, comments, or require further assistance, please do not hesitate to contact me directly at (510) 724-3100.

Sincerely,



Michael A. Polkabla, CIH, REA
Vice President, Principal

LIMITATIONS

Please note that the professional opinions presented in this review are intended for the sole use of DGS and their designated beneficiaries. No other party should rely on the information contained herein without the prior written consent of BioMax Environmental and DGS. The professional opinions provided herein are based on BioMax's review and understanding of current site information and observed site conditions present within the areas inspected at the time these services were performed. Professional recommendations provided as part of this limited scope of work are intended for client consideration only and are not intended as a professional or regulatory mandate. Implementation of any of the above measures or recommendations does not, in any way, warrant the day-to-day health and/or safety of building occupants, residents, site workers, nor regulatory or building code compliance status during normal and changing environmental conditions. As microbial contamination, by nature, may change over time due to additional moisture intrusion, favorable growth conditions, and changing environments, the findings of this report are subject to change in the event that such conditions and/or environments arise. Also, the professional opinions expressed here are subject to revision in the event that new or previously undiscovered information is obtained or uncovered.

The information contained in this and any other applicable report communication is intended for consideration purposes only. It is not intended, nor should it be construed as providing legal advice or warranting any level of safety or regulatory compliance. The sole purpose of such information is to assist with the identification, evaluation and control of potential contamination or unnecessary physical, chemical, and/or biological hazards. Any action taken based on this information, including but not limited to opinions, suggestions and recommendations, whether implied or expressed, is the sole responsibility of the individual taking the action. Risk management and safety is criteria dependent and situation specific requiring extensive knowledge and value assessments to be properly determined by competent professionals.

These services were performed by BioMax in accordance with generally accepted professional industrial hygiene principals, practices, and standards of care. Under the existing Industrial Hygiene Definition and Registration Act, all reports, opinions or official documents prepared by a Certified Industrial Hygienist (CIH) constitutes an expression of professional opinion regarding those facts or findings which are subject of a certification and does not constitute a warranty or guarantee, either expressed or implied.